

## **Title: HARVEY'S PENCIL BOX**

### **Brief Overview:**

In this unit students will be able to add and subtract simple fractions and mixed numbers with common denominators. By using the contents of a pencil box, students will use and apply these concepts.

### **NCTM 2000 Principles for School Mathematics:**

- . **Equity:** *Excellence in mathematics education requires equity - high expectations and strong support for all students.*
- . **Curriculum:** *A curriculum is more than a collection of activities: it must be coherent, focused on important mathematics, and well articulated across the grades.*
- . **Teaching:** *Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well.*
- . **Learning:** *Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge.*
- . **Assessment:** *Assessment should support the learning of important mathematics and furnish useful information to both teachers and students.*
- . **Technology:** *Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students' learning.*

### **Links to NCTM 2000 Standards:**

#### . **Content Standards**

##### **Number and Operations**

1. Understand meanings of operations and how they relate to one another.
2. Compute fluently and make reasonable estimates.

##### **Algebra**

1. Represent and analyze mathematical situations and structures using algebraic symbols.
2. Use mathematical models to represent and understand quantitative relationships.

#### **Process Standards**

##### **Problem Solving**

- . Build new mathematical knowledge through problem solving.
- . Apply and adapt a variety of appropriate strategies to solve problems.
- . Monitor and reflect on the process of mathematical problem solving.

##### **Reasoning and Proof**

- . Select and use various types of reasoning and methods of proof.

### **Communication**

- . Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

### **Connections**

- . Recognize and use connections amount mathematical ideas.
- . Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

### **Representation**

- . Create and use representations to organize, record, and communicate mathematical ideas.

### **Grade/Level**

Grades 3-4

### **Duration/Length:**

Approximately 3 class periods

### **Prerequisite Knowledge:**

Students should have working knowledge of the following skills:

- . Recognize fractions as part of a whole
- . Recognize fractions that are expressed by a symbol
- . Writing to inform
- . Basic problem skills
- . Recognition of the vocabulary, numerator, denominator, and mix numbers
- . Recognize that a fraction may be used to compare two things

### **Student Outcomes:**

Students will:

- . Add and subtract fractions with common denominations
- . Work in groups
- . Use concrete materials and models to express fractional parts of a whole
- . Realize that fractions are used in real life
- . Add and subtract mixed numbers with common denominations

### **Materials/Resources/Printed Materials:**

- . Overhead fraction tile set
- . Fraction tiles for each student
- . Overhead pattern blocks
- . Pattern blocks for each student
- . Scissors
- . Glue sticks or paste

- . Student Resource Sheets #1-9
- . Teacher Resource Sheets #1-13
- . Transparency of “Harvey’s Pencil Box”

## **Development/Procedures:**

### **Day One:**

- . Materials
  - o Student Resource Sheets #1-4 for each student
  - o Fraction tiles for each student
  - o Overhead fraction tiles
  - o Scissors
  - o Glue sticks or paste
- . Introduction – Elicit prior knowledge by asking students to brainstorm what might be in a pencil box. List responses on board.
- . Discussion - Ask students to think about the contents of their own pencil boxes. Ask: Can you explain what is in your pencil box using fractions? How? For example, if there are five items in the pencil box and two are crayons, one can say  $\frac{2}{5}$  of the contents are crayons.
- . Put the word ***fraction*** (Teacher Resources #1) on your Math Word chart.
- . Give each student a set of fraction tiles.
- . Tell students they are going to learn to add fractions with common denominators. (Add ***common denominators*** (Teacher Resource #1) to Math Word chart.) Ask them to lay a  $\frac{1}{6}$  tile on their desks and then lay another  $\frac{1}{6}$  tile as you model on the overhead. Tell them that we are adding sixths so the denominator does not change. How many sixths do we have on the desk? Then ask them to put  $\frac{1}{10}$  and  $\frac{3}{10}$  as you model. Then  $\frac{1}{12} + \frac{2}{12} + \frac{4}{12}$ . Ask students to explain each answer they give.
- . Have them partner and create several addition problems of their own, taking turns creating and answering.
- . Distribute Student Resource Sheet #1 and have the students complete the example. Answer key is on Teacher Resource Sheet #2.
- . Distribute Student Resource Sheet #2 and have students complete the examples. Answer key can be found on Teacher Resource Sheet #3.
- . Distribute Student Resource Sheets #3-4. (Assessment)
- . Students will also need scissors and glue sticks.
- . A rubric for scoring can be found on Teacher Resource Sheet #4.

### **Day Two:**

- . Materials
  - o “Harvey’s Pencil Box” transparency
  - o Pattern blocks
  - o Student Resource Sheets #5-6
- . Warm-up-Use “Harvey’s Pencil Box” transparency (Teacher Resource Sheet #5).
  - o How many pens and pencils does Harvey have in his pencil box? (Answer is 3.) How many items are in the pencil box? (Answer is 10.) What fractional part of the whole set of items do the pencils and pens represent? (Answer is  $\frac{3}{10}$ )
  - o How many erasers, pens, highlighters, and scissors does Harvey have? (4) How many items are in the pencil box? (10) What fractional part of the whole set of items do these items represent? ANSWER: is  $\frac{4}{10}$
- . Tell students they are going to learn to subtract fractions with common denominators.

- . Give each pair of students a set of pattern blocks.
- . Ask them to place the pattern block representing one whole shape (yellow hexagon) on their desks as you model. Tell them to fill the whole shape using the  $\frac{1}{6}$  pattern blocks (green triangles).
  - o Write the fraction that tells how many blocks it takes to fill the whole. ( $\frac{6}{6}$ )
  - o Take 3 pieces away.
  - o Write the number sentence that describes the operation. ( $\frac{6}{6} - \frac{3}{6} = \frac{3}{6}$ )
  - o Explain your answer.
  - o Repeat the above procedure using 4 pieces. ( $\frac{6}{6} - \frac{4}{6} = \frac{2}{6}$ )
- . Have students complete Student Resource Sheets #5-6. Answers may be found on Teacher Resource Sheets #6-7.

### **Day Three:**

- . Materials
  - o “Harvey’s Pencil Box” transparency (Teacher Resource Sheet #5)
  - o Pattern blocks
  - o Student Resource Sheets #7-9
- . Tell students they are going to learn to add and subtract mixed numbers with common denominators.
- . Give each pair of students a set of pattern blocks.
- . Ask them to place three hexagon pattern blocks representing one whole shape and three green triangles at the top of their desks as you model. Tell them to place in the middle of their desks two hexagon pattern blocks each representing one whole shape and three triangle  $\frac{1}{6}$  pieces on their desks.
  - o Find the sum. ( $3\frac{3}{6} + 2\frac{3}{6} = 5\frac{6}{6}$  or 6)
  - o Write the number sentence that describes the operation.
  - o Explain your answer.
- . Have students complete Student Resource Sheets #7-8. Answers can be found on Teacher Resource Sheets #9-10.
- . Students may play the Fraction Bingo Game on Student Resource Sheet #9. Directions can be found on Teacher Resource Sheets #11-12.

### **Performance Assessment:**

The students will be completing Performance Assessment Sheets. These sheets will show evidence of ability to add and subtract fractions and mixed numbers with common denominators. A connection of writing enables students to explain their thinking.

**Extension/Follow Up:**

- . Create a word puzzle using fractions.
- . Make a fraction flashcards activity.
- . “Shout It Out!” Use Teacher Resource Sheet #13 to make the game.

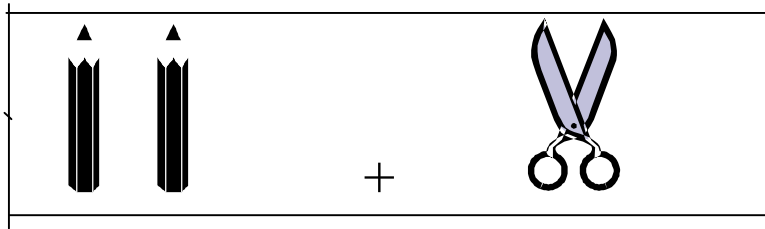
**Authors:**

Debra Elliott  
Delmar Elementary  
Wicomico County

Susan Cormier  
Pittsville Elementary & Middle  
Wicomico County

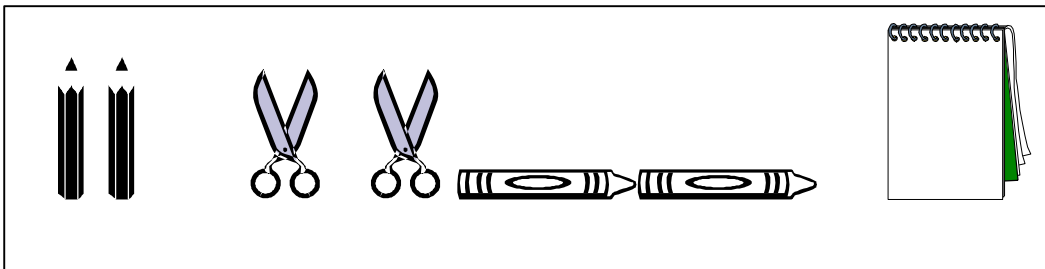
Canisius Hansberry  
Saint Katharine Elementary  
Baltimore City

1. These items were found in Harvey's pencil box when he was in kindergarten. Using fractions, write the number sentence that shows what is in his pencil box.



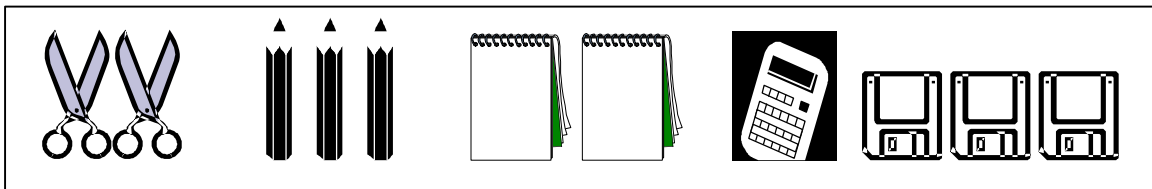
\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

2. When Harvey was in the first grade he needed more tools for school. Below is what his pencil box looked like. Write a number sentence using fractions that shows what is in his box.



Ø \_\_\_\_\_

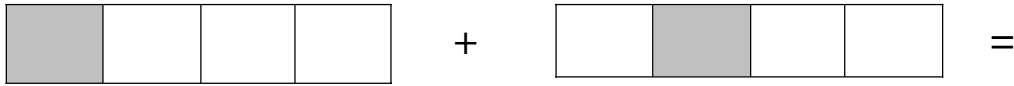
3. Harvey is in fourth grade. Below, write a number sentence using fractions that shows what his pencil box contains.



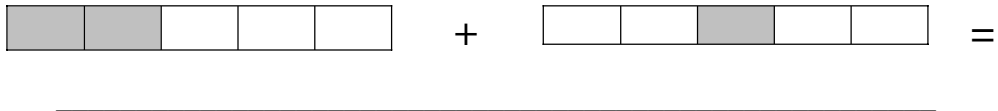
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Harvey found some scraps of paper with shaded blocks and pictures on them in his pencil box. Write the number sentences using fractions for the pictures below.

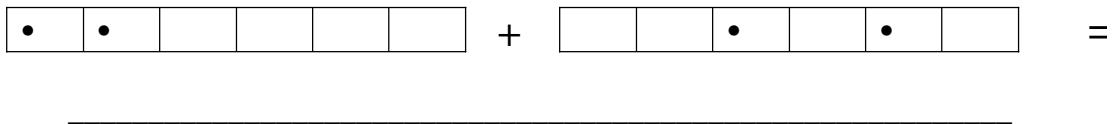
1.



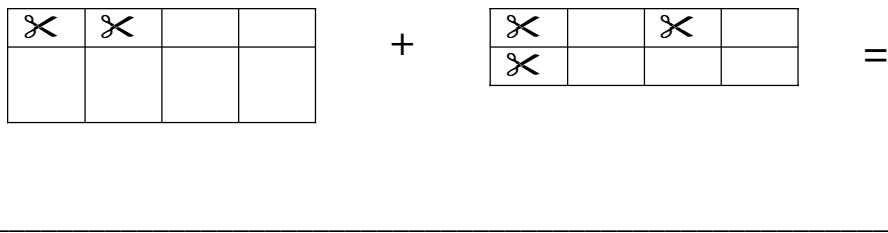
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3.



4.



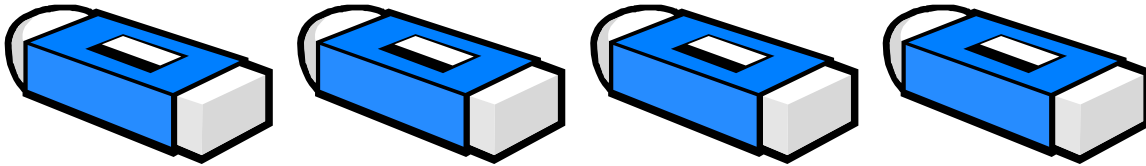
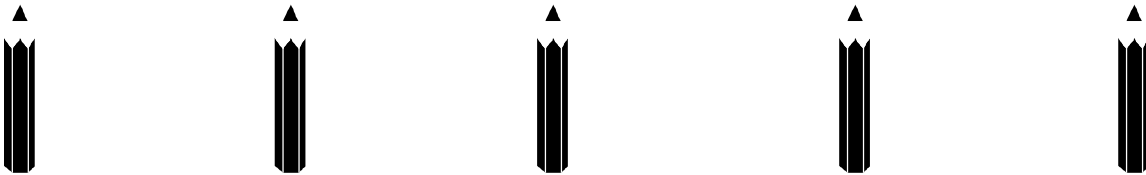
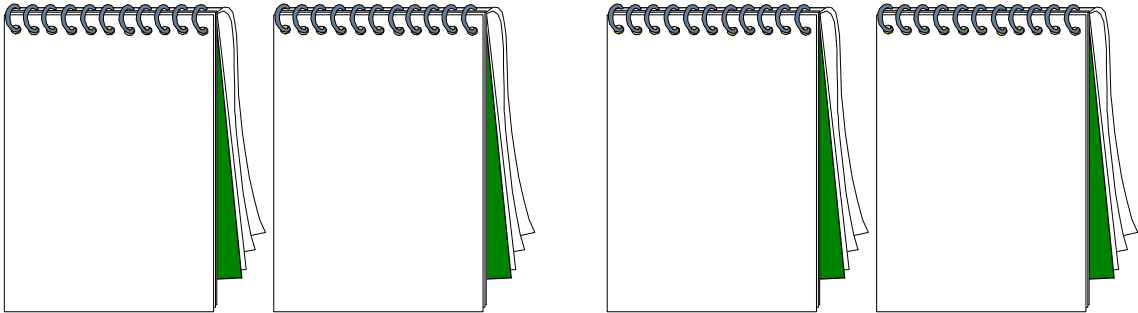
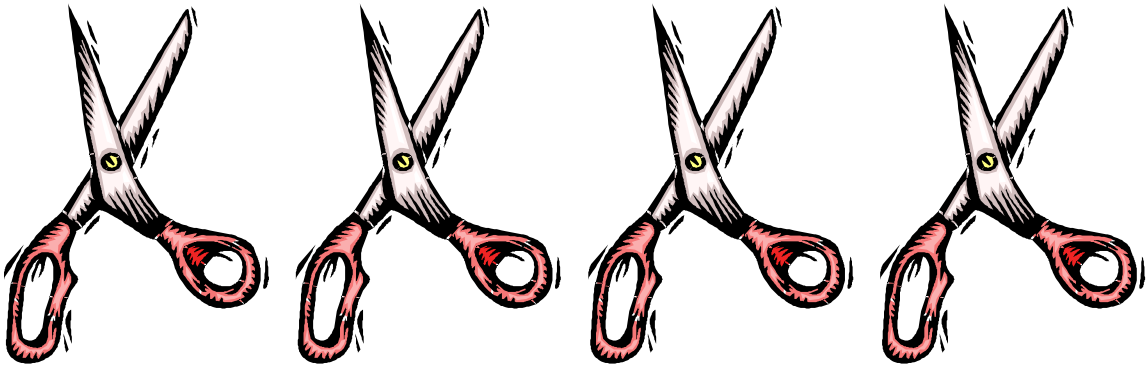
Then Harvey found an old math book that belonged to his father. He found these problems and tried to do them. Hurray! He could. Try your hand at them. **HINT:** The numerators will add up to 35!

5.  $\frac{4}{9} + \frac{1}{9} =$

6.  $\frac{5}{12} + \frac{2}{12} =$

7.  $\frac{8}{14} + \frac{3}{14} =$

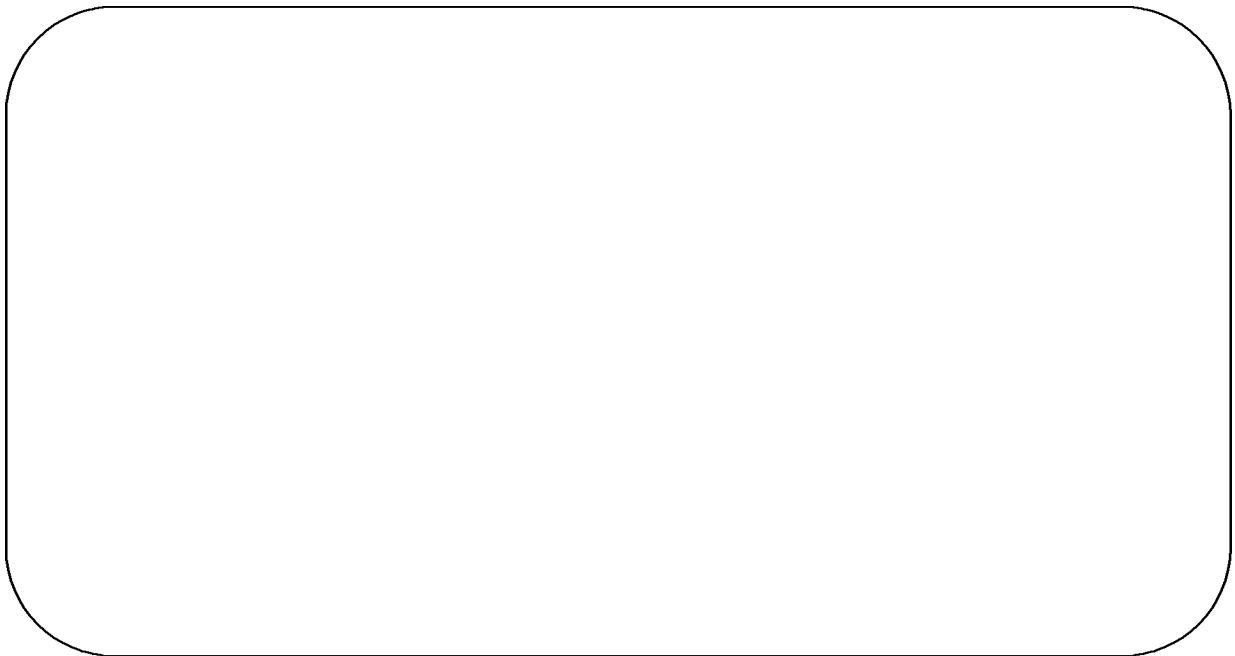
8.  $\frac{2}{24} + \frac{10}{24} =$





\_\_\_\_\_’s Pencil Box

Now you are going to create your own pencil box choosing from the items on Student Resource Sheet #3. Cut and paste the items you want in your pencil box. Then, using what you know about adding fractions, write the number sentence that shows what is in your box. At the bottom of your paper, write a paragraph explaining your number sentence.



**Number Sentence** \_\_\_\_\_

**My explanation:**

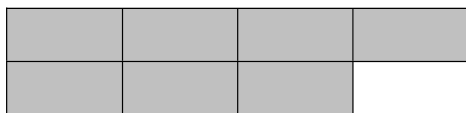
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\_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

Place an "X" on the parts to show the results of the subtraction sentence.

1.



$7/8 - 2/8 =$

2.



$3/4 - 1/4 =$

Draw a model and solve each number sentence.

3.  $5/6 - 3/6 =$

4.  $7/9 - 2/9 =$

Solve each number sentence.

5.  $6/7 - 3/7 =$

6.  $4/5 - 1/5 =$

7.  $5/8 - 2/8 =$

8.  $3/4 - 2/4 =$

9.  $7/9 - 1/9 =$

10.  $8/11 - 3/11 =$

Solve each number sentence. Watch the sign.

11.  $\frac{3}{8} + \frac{2}{8} =$

12.  $\frac{12}{13} - \frac{7}{13} =$

13.  $\frac{1}{8} + \frac{3}{8} =$

14.  $\frac{2}{7} + \frac{3}{7} =$

15.  $\frac{3}{3} - \frac{1}{3} =$

16.  $\frac{7}{9} - \frac{3}{9} =$

17.  $\frac{7}{8} - \frac{5}{\square} = \frac{\square}{8}$

18.  $\frac{11}{9} - \frac{3}{\square} = \frac{\square}{9}$

19.  $\frac{4}{6} - m = \frac{1}{6}$      $m = \underline{\hspace{2cm}}$

Sue is new to the class. She wrote this number sentence. Help her write it correctly, make a model and explain the answer so she is able to do the next one by herself.

20. 
$$\begin{array}{r} \underline{5} - \underline{1} = \underline{4} \\ 9 \quad 9 \quad 0 \end{array}$$

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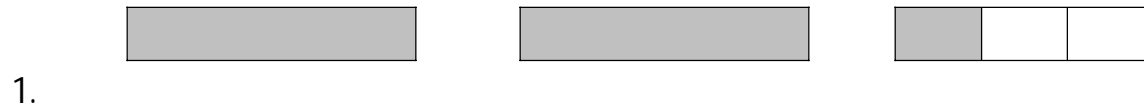
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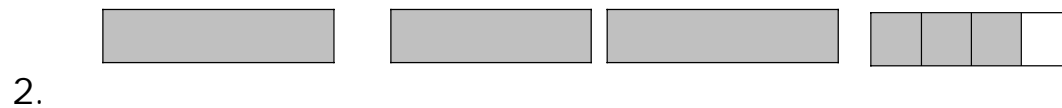
Name \_\_\_\_\_ Date \_\_\_\_\_

Combine the fractions. Write an addition sentence.



\_\_\_\_\_

Place an x on each part to show the subtraction sentence. Complete the sentence.



$$\underline{\hspace{2cm}} - 2 \frac{1}{4} = \underline{\hspace{2cm}}$$

Draw a model and solve each number sentence.

3.  $2 \frac{2}{8} + 4 \frac{5}{8} =$

4.  $3 \frac{5}{6} - 2 \frac{2}{6} =$

Solve each number sentence. Watch the sign.

5.  $4 \frac{6}{7} - 2 \frac{3}{7} =$

6.  $2 \frac{1}{5} + 1 \frac{1}{5} =$

7.  $3 \frac{5}{8} - 1 \frac{2}{8} =$

8.  $7 \frac{3}{4} - 4 \frac{2}{4} =$

9.  $7 \frac{2}{9} + 4 \frac{1}{9} =$

10.  $2 \frac{8}{11} + 1 \frac{3}{11} =$

Kate loves solving mysteries. Help her solve these mysterious number sentences with like denominators.

11.  $3 \frac{7}{8} - 1 \frac{5}{\square} = \square \frac{\square}{8}$

12.  $4 \frac{5}{9} + 3 \frac{2}{\square} = \square \frac{\square}{\square}$

13.  $3 \frac{4}{6} - m = 2 \frac{1}{6}$      $m = \square \frac{\square}{6}$

Describe the steps you use when you add mixed numbers that have like denominators.

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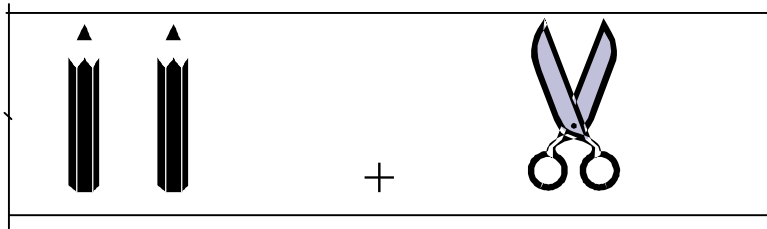
## Harvey's Fraction Bingo


fraction

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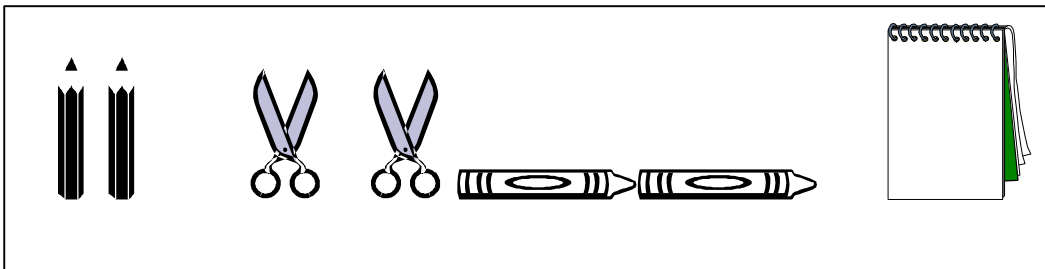
common  
denominator

1. These items were found in Harvey's pencil box when he was in kindergarten. Using fractions, write the number sentence that shows what is in his pencil box.



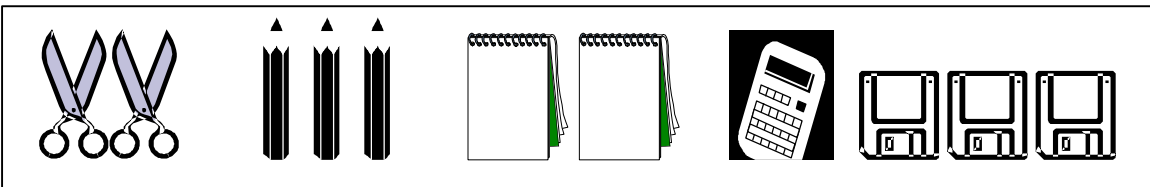
$$\frac{2}{3} + \frac{1}{3} = \frac{3}{3}$$

2. When Harvey was in the first grade he needed more tools for school. Below is what his pencil box looked like. Write a number sentence using fractions that shows what is in his box.



$$\frac{2}{7} + \frac{2}{7} + \frac{2}{7} + \frac{1}{7} = \frac{7}{7}$$

Ø Harvey is in fourth grade. Below, write a number sentence using fractions that shows what his pencil box contains.

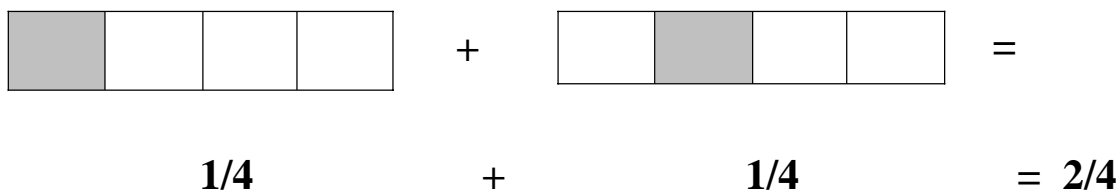


$$\frac{2}{11} + \frac{3}{11} + \frac{2}{11} + \frac{1}{11} + \frac{3}{11} = \frac{11}{11}$$



Harvey found some scraps of paper with shaded blocks and pictures on them in his pencil box. Write the number sentences using fractions to represent the shaded or illustrated blocks for the pictures below.

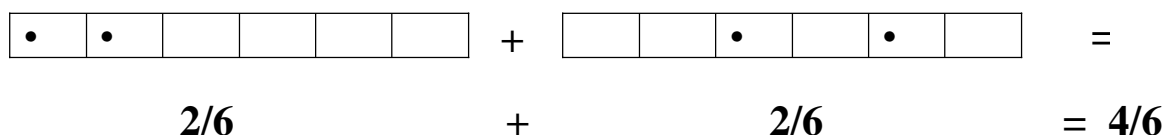
1.



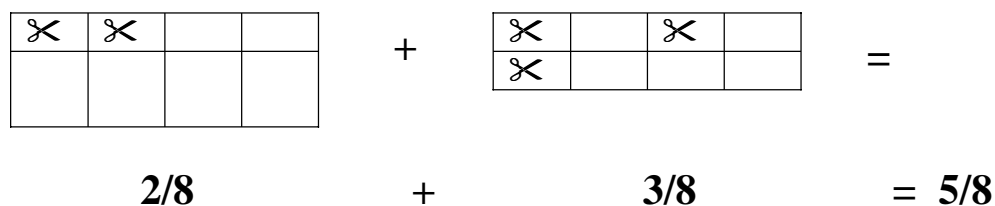
2.



3.



4.



Then Harvey found an old math book that belonged to his father. He found these problems and tried to do them. Hurray! He could. Try your hand at them. HINT: The numerators will add up to 35!

5.  $\frac{4}{9} + \frac{1}{9} = \frac{5}{9}$

6.  $\frac{5}{12} + \frac{2}{12} = \frac{7}{12}$

7.  $\frac{8}{14} + \frac{3}{14} = \frac{11}{14}$

8.  $\frac{2}{24} + \frac{10}{24} = \frac{12}{24}$

\_\_\_\_\_’s Pencil Box

Scoring Tool for Day 1 Assessment – Student Pencil Box

Points

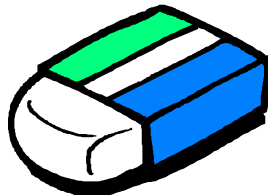
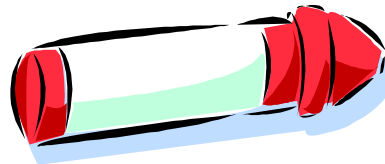
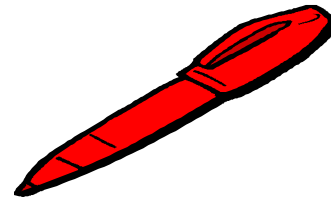
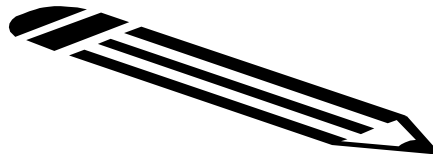
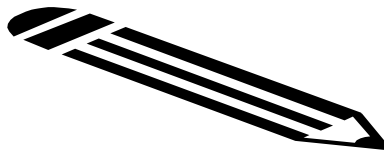
Number Sentence

Numerators written correctly	1
Denominators written correctly	1
Correct Answer	<u>1</u>
Total	3

Paragraph Rubric

<b>2</b>	Complete explanation of number sentence written in a logical sequence. Math terms are used appropriately.
<b>1</b>	Partial explanation of number sentence written in a logical manner. Math terms are used appropriately.
<b>0</b>	Explanation is vague or not logical. Math terms are missing or inappropriate.

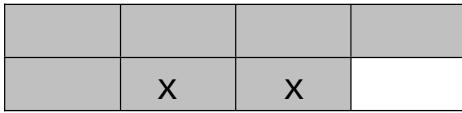
## Harvey's Pencil Box



Name \_\_\_\_\_ Date \_\_\_\_\_

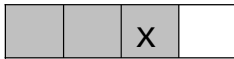
Place an "X" on the parts to show the results of the subtraction sentence.

1.



$$7/8 - 2/8 = 5/8$$

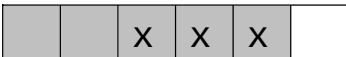
2.



$$3/4 - 1/4 = 2/4$$

Draw a model and solve each number sentence.

3.  $5/6 - 3/6 = 2/6$



4.  $7/9 - 2/9 = 5/9$



Solve each number sentence.

5.  $6/7 - 3/7 = 3/7$

6.  $4/5 - 1/5 = 3/5$

7.  $5/8 - 2/8 = 3/8$

8.  $3/4 - 2/4 = 1/4$

9.  $7/9 - 1/9 = 6/9$

10.  $8/11 - 3/11 = 5/11$

Solve each number sentence. Watch the sign.

11.  $3/8 + 2/8 = 5/8$

12.  $12/13 - 7/13 = 5/13$

13.  $1/8 + 3/8 = 4/8$

14.  $2/7 + 3/7 = 5/7$

15.  $3/3 - 1/3 = 2/3$

16.  $7/9 - 3/9 = 4/9$

17.  $7/8 - 5/8 = 2/8$

18.  $11/9 - 3/9 = 8/9$

19.  $\frac{4}{6} - m = \frac{1}{6}$      $m = \underline{\frac{3}{6}}$

Sue is new to the class. She wrote this number sentence. Help her write it correctly, make a model and explain the answer so she is able to do the next one by herself.

20.  $\frac{5}{9} - \frac{1}{9} = \frac{4}{0}$                    $\frac{5}{9} - \frac{1}{9} = \frac{4}{9}$

				X				
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Sample answer: When you subtract fractions with like denominators the denominator stays the same when you subtract.

Rubric

- 2-Student correctly includes 2 of the three items above.
- 1- Student correctly includes 1 of the three items above.
- 0-Student makes no attempt to do the above activity.

Jake dropped his pencil box which contained 6 pencils. Three of the pencils need to be sharpened. What fraction of his pencils can be used? Explain your answer.

Sample answer: Jake can use  $\frac{3}{6}$  of his pencils. The difference of  $\frac{6}{6} - \frac{3}{6}$  or  $\frac{1}{2}$  of Jake's pencils can be used.

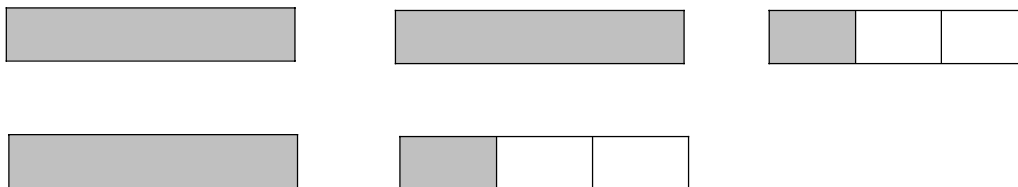
Rubric

- 2-Student includes a number sentence, an answer sentence, and an explanation that is mathematically correct.
- 1-Student has an explanation attempts to explain the answer.
- 0-Student makes no attempt.

Name \_\_\_\_\_ Date \_\_\_\_\_

Combine the fractions. Write an addition sentence.

1.



$$\underline{2 \frac{1}{3} + 1 \frac{1}{3} = 3 \frac{2}{3}}$$

Place an x on each part to show the subtraction sentence. Complete the sentence.

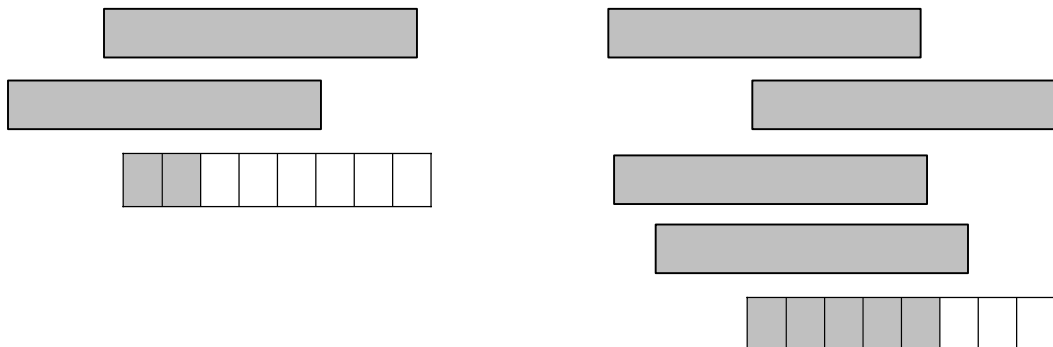
2.



$$\underline{3 \frac{3}{4} - 2 \frac{1}{4} = 1 \frac{2}{4}}$$

Draw a model and solve each number sentence.

$$3. \quad 2 \frac{2}{8} + 4 \frac{5}{8} = 6 \frac{7}{8}$$



4.  $3 \frac{5}{6} - 2 \frac{2}{6} = 1 \frac{3}{6}$

X
X
X

X
X

X	X	X	X	X	
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			X	X	
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Solve each number sentence. Watch the sign.

5.  $4 \frac{6}{7} - 2 \frac{3}{7} = \underline{2 \frac{3}{7}}$

6.  $2 \frac{1}{5} + 1 \frac{1}{5} = \underline{3 \frac{2}{5}}$

7.  $3 \frac{5}{8} - 1 \frac{2}{8} = \underline{2 \frac{3}{8}}$

8.  $7 \frac{3}{4} - 4 \frac{2}{4} = \underline{3 \frac{1}{4}}$

9.  $7 \frac{2}{9} + 4 \frac{1}{9} = \underline{11 \frac{3}{9}}$

10.  $2 \frac{8}{11} + 1 \frac{3}{11} = \underline{3 \frac{11}{11} = 4}$

Kate loves solving mysteries. Help her solve these mysterious number sentences with like denominators.

11.  $3 \frac{7}{8} - 1 \frac{5}{8} = 2 \frac{2}{8}$

12.  $4 \frac{5}{9} + 3 \frac{2}{9} = 7 \frac{7}{9}$

13.  $3 \frac{4}{6} - m = 2 \frac{1}{6} \quad m = \underline{1 \frac{3}{6}}$

Describe the steps you use when you add mixed fractions that have like denominators.

Sample answer: Add the fraction and then add the whole numbers.

Rubric:

- 1-Student explains that the fractions are added and then the whole numbers.
- 0-Student is unable or unwilling to try.

### Fraction Bingo Game

1. Write the following numbers on the board or overhead. (In mixed numbers, the whole numbers are written in BOLD for easier reading.)

$\frac{4}{5}$    **12**  $\frac{3}{4}$    **2**  $\frac{3}{5}$    **4**  $\frac{1}{8}$    **5**  $\frac{6}{8}$    **3**  $\frac{6}{8}$    **11**  $\frac{4}{8}$    **2**  $\frac{1}{8}$    **3**  
**8**   **2**  $\frac{4}{8}$    **48**  $\frac{2}{8}$    **2**  $\frac{2}{20}$     $\frac{2}{8}$    **1**   **14**  $\frac{2}{5}$    **5**  $\frac{8}{9}$    **5**

2. Students copy sixteen of these numbers on their Student Resource Sheet # 9.
3. Pass out Bingo markers (red disks, corn, etc.) giving each student about 20.
4. Give directions for Bingo telling students to put a marker on any squares having the correct answer to problems you are going to read. They may win by getting 4 across, up and down, diagonally, 4 corners, total board, etc. When they win they are to yell out, "Fraction!" (Students may calculate these problems mentally or with pencil and paper depending on their level.)
5. *Read:* Harvey and his classmates all have pencil boxes and items they have purchased at the school store. Use what you know about adding and subtracting fractions and mixed numbers to play Fraction Bingo!

### Harvey's Bingo Problems

1. John has **3**  $\frac{4}{5}$  of sheets of paper. Bill asked for 3 of John's sheets. How many sheets will he have after he gives 3 sheets to Bill?
2. Paul found  $\frac{3}{4}$  of a box of paper clips in his desk. He gave them to his teacher who already had 12 boxes. How many boxes does she have now?
3. Harvey's brother gave him two full packs of gum. Harvey already had  $\frac{3}{5}$  of a pack. How much gum does he have now?
4. There are **6**  $\frac{4}{8}$  boxes of blue ink pens in the school store. During testing week, the students bought **2**  $\frac{3}{8}$  boxes of pens. How many were left?
5. In the school store, boxes of folders were stacked on the top shelf. Rene counted **3**  $\frac{4}{8}$  boxes and then found another **2**  $\frac{2}{8}$  boxes. How many boxes of folders were there in all?
6. Sue had 2 new erasers and  $\frac{2}{8}$  of an old one. Her friend Harvey gave her 1 other new one and  $\frac{4}{8}$  of an old one. How many erasers does she have now?



7. Paul has **9** whole glue sticks and  $\frac{3}{8}$  of an old one. Mary gave him **2** more new ones and  $\frac{1}{8}$  of an old one. How many does he have now?
8. Danny counted **4**  $\frac{2}{8}$  boxes of scissors in the school store. Students needed scissors for an art project. They bought **2**  $\frac{1}{8}$  boxes. How many boxes were left in the store?
9. Sue dropped her crayons and broke some. She had 6 halves of crayons. How many whole crayons did she have before they broke?
10. Harvey measured his book and found it was **18**  $\frac{1}{2}$  inches long. His pencil was **10**  $\frac{1}{2}$  inches long. How much longer is his book than his pencil?
11. The first bell rang for **1**  $\frac{1}{8}$  minutes. The second bell rang for **1**  $\frac{3}{8}$  minutes. How long did both bells ring together?
12. In math, Harvey's class had to measure their desks. Each desk was **24**  $\frac{1}{8}$  inches wide. If you pushed two desks together, how long would they be?
13. The cafeteria ladies sold **18**  $\frac{7}{20}$  cases of French fries. They need to keep **20**  $\frac{9}{20}$  cases of French fries on hand at all times. How many cases do they need to order?
14. Danny and Harvey had a broad jumping contest. Danny jumped **6**  $\frac{7}{8}$  feet. Harvey jumped **6**  $\frac{5}{8}$  feet. How much further did Danny jump than Harvey?
15. Sue wears a size **7**  $\frac{1}{2}$  shoe. Mary wears size **8**  $\frac{1}{2}$ . What is the difference in their sizes?
16. Harry and Danny measured their pencil boxes. Both boxes were **7**  $\frac{1}{5}$  inches wide. If the boxes were placed side by side, how wide would they be together?
17. On Monday, Harvey sold **2**  $\frac{7}{9}$  cartons of paint in the school store. On Tuesday he sold **3**  $\frac{1}{9}$  cartons of paint. How many cartons of paint did he sell?
18. **6**  $\frac{2}{8}$  of the classes drank chocolate milk for lunch. **1**  $\frac{2}{8}$  of the classes drank plain milk. What is the difference in numbers between the chocolate and plain milk drinkers?

### **Fraction Bingo Game**

1. Write the following numbers on the board or overhead. (In mixed numbers, the whole numbers are written in BOLD for easier reading.)

$\frac{4}{5}$    **12**  $\frac{3}{4}$    **2**  $\frac{3}{5}$    **4**  $\frac{1}{8}$    **5**  $\frac{6}{8}$    **3**  $\frac{6}{8}$    **11**  $\frac{4}{8}$    **2**  $\frac{1}{8}$    **3**  
**8**   **2**  $\frac{4}{8}$    **48**  $\frac{2}{8}$    **2**  $\frac{2}{20}$     $\frac{2}{8}$    **1**   **14**  $\frac{2}{5}$    **5**  $\frac{8}{9}$    **5**

2. Students copy sixteen of these numbers on their Student Resource Sheet # 9.
6. Pass out Bingo markers (red disks, corn, etc.) giving each student about 20.
7. Give directions for Bingo telling students to put a marker on any squares having the correct answer to problems you are going to read. They may win by getting 4 across, up and down, diagonally, 4 corners, total board, etc. When they win they are to yell out, "Fraction!" (Students may calculate these problems mentally or with pencil and paper depending on their level.)
8. *Read:* Harvey and his classmates all have pencil boxes and items they have purchased at the school store. Use what you know about adding and subtracting fractions and mixed numbers to play Fraction Bingo!

### **Harvey's Bingo Problems**

1. John has **3**  $\frac{4}{5}$  of sheets of paper. Bill asked for 3 of John's sheets. How many sheets will he have after he gives 3 sheets to Bill? ( $\frac{4}{5}$ )
2. Paul found  $\frac{3}{4}$  of a box of paper clips in his desk. He gave them to his teacher who already had 12 boxes. How many boxes does she have now? (**12**  $\frac{3}{4}$ )
3. Harvey's brother gave him two full packs of gum. Harvey already had  $\frac{3}{5}$  of a pack. How much gum does he have now? (**2**  $\frac{3}{5}$ )
4. There are **6**  $\frac{4}{8}$  boxes of blue ink pens in the school store. During testing week, the students bought **2**  $\frac{3}{8}$  boxes of pens. How many were left? (**4**  $\frac{1}{8}$ )
5. In the school store, boxes of folders were stacked on the top shelf. Rene counted **3**  $\frac{4}{8}$  boxes and then found another **2**  $\frac{2}{8}$  boxes. How many boxes of folders were there in all? (**5**  $\frac{6}{8}$ )
6. Sue had 2 new erasers and  $\frac{2}{8}$  of an old one. Her friend Harvey gave her 1 other new one and  $\frac{4}{8}$  of an old one. How many erasers does she have now? (**3**  $\frac{6}{8}$ )

7. Paul has **9** whole glue sticks and  $\frac{3}{8}$  of an old one. Mary gave him **2** more new ones and  $\frac{1}{8}$  of an old one. How many does he have now? (**11  $\frac{4}{8}$** )
8. Danny counted **4  $\frac{2}{8}$**  boxes of scissors in the school store. Students needed scissors for an art project. They bought **2  $\frac{1}{8}$**  boxes. How many boxes were left in the store? (**2  $\frac{1}{8}$** )
9. Sue dropped her crayons and broke some. She had **6** halves of crayons. How many whole crayons did she have before they broke? (**3**)
10. Harvey measured his book and found it was **18  $\frac{1}{2}$**  inches long. His pencil was **10  $\frac{1}{2}$**  inches long. How much longer is his book than his pencil? (**8**)
11. The first bell rang for **1  $\frac{1}{8}$**  minutes. The second bell rang for **1  $\frac{3}{8}$**  minutes. How long did both bells ring together? (**2  $\frac{4}{8}$** )
12. In math, Harvey's class had to measure their desks. Each desk was **24  $\frac{1}{8}$**  inches wide. If you pushed two desks together, how long would they be? (**48  $\frac{2}{8}$** )
13. The cafeteria ladies sold **18  $\frac{7}{20}$**  cases of French fries. They need to keep **20  $\frac{9}{20}$**  cases of French fries on hand at all times. How many cases do they need to order? (**2  $\frac{2}{20}$** )
14. Danny and Harvey had a broad jumping contest. Danny jumped **6  $\frac{7}{8}$**  feet. Harvey jumped **6  $\frac{5}{8}$**  feet. How much further did Danny jump than Harvey? (**2  $\frac{2}{8}$** )
15. Sue wears a size **7- $\frac{1}{2}$**  shoe. Mary wears size **8  $\frac{1}{2}$** . What is the difference in their sizes? (**1**)
16. Harry and Danny measured their pencil boxes. Both boxes were **7  $\frac{1}{5}$**  inches wide. If the boxes were placed side by side, how wide would they be together? (**14  $\frac{2}{5}$** )
17. On Monday, Harvey sold **2  $\frac{7}{9}$**  cartons of paint in the school store. On Tuesday he sold **3  $\frac{1}{9}$**  cartons of paint. How many cartons of paint did he sell? (**5  $\frac{8}{9}$** )
18. **6  $\frac{2}{8}$**  of the classes drank chocolate milk for lunch. **1  $\frac{2}{8}$**  of the classes drank plain milk. What is the difference in numbers between the chocolate and plain milk drinkers? (**5**)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# SHOUT IT OUT!

Glue sheet onto tag and cut out blocks. Give each student a card. Choose one student to begin by reading their card. The student with the correct response then answers and reads his card. This process continues until the teacher or leader card is read. At this point you can continue or stop.

My fraction is $1 \frac{1}{3}$ Who has $1 \frac{1}{3}$ and $2 \frac{1}{3}$ more?	My fraction is $3 \frac{1}{30}$ Who has $8 \frac{4}{8}$ and $3 \frac{2}{8}$ less?
My fraction is $3 \frac{2}{3}$ Who has $3 \frac{2}{6}$ and $4 \frac{1}{6}$ More?	My fraction is $5 \frac{3}{8}$ Who has $12 \frac{6}{12}$ and $4 \frac{3}{12}$ less?
My fraction is $7 \frac{3}{6}$ Who has $6 \frac{4}{10}$ and $2 \frac{1}{10}$ less?	My fraction is $8 \frac{3}{12}$ Who has $5 \frac{9}{14}$ and $1 \frac{1}{14}$ more?
My fraction is $4 \frac{3}{10}$ Who has $9 \frac{5}{12}$ and $4 \frac{2}{10}$ less?	My fraction is $6 \frac{10}{14}$ Who has $12 \frac{6}{11}$ and 1 and $\frac{1}{11}$ more?
My fraction is $5 \frac{3}{10}$ Who has $5 \frac{3}{10}$ and $4 \frac{2}{10}$ more?	My fraction is $13 \frac{7}{11}$ Who has $6 \frac{2}{5}$ and 1 and $\frac{1}{5}$ less?
My fraction is $9 \frac{5}{10}$ Who has $7 \frac{8}{20}$ and $2 \frac{3}{20}$ less?	My fraction is $5 \frac{1}{5}$ Who has $19 \frac{15}{24}$ and $12 \frac{10}{24}$ less?
My fraction is $5 \frac{5}{20}$ Who has $9 \frac{13}{16}$ and $5 \frac{4}{16}$ less?	My fraction is $17 \frac{5}{24}$ Who has $2 \frac{3}{9}$ and $3 \frac{2}{9}$ more?
My fraction is $4 \frac{9}{20}$ Who has $7 \frac{9}{15}$ and $3 \frac{1}{15}$ less?	My fraction is $5 \frac{5}{9}$ Who has $9 \frac{5}{36}$ and $2 \frac{3}{36}$ more?
My fraction is $4 \frac{8}{15}$ Who has $2 \frac{4}{8}$ and $3 \frac{1}{8}$ more?	My fraction is $11 \frac{8}{36}$ Who has $8 \frac{6}{14}$ and $4 \frac{3}{14}$ less?
My fraction is $5 \frac{5}{8}$ Who has $10 \frac{16}{30}$ and $7 \frac{15}{30}$ less?	<b>Teacher: my fraction is <math>4 \frac{3}{14}</math> Do we want to stop or go on?</b>